IN THE SPECIFICATION

Please amend the paragraph at page 4, line 19 to page 5, line 7, as follows:

The magnetization pinned layer of ferromagnetic material for a practical use should have ~~stabled~~ stable magnetization, which substantially keep its intended original direction of magnetization in an applied magnetic field so that the spin valve transistor can attain effective signal noise ratio and magnetoresistance ratio. An antiferromagnetic material such as IrMn may be formed in contact with the magnetization pinned layer of ferromagnetic material in the base so that an exchange coupling between the magnetization pinned layer of ferromagnetic material and the antiferromagnetic material layer stably fixes the magnetization of the pinned layer. However, the insertion of the antiferromagnetic material layer may increase hot electrons scatter, which is not caused by its spin direction, in the antiferromagnetic material layer and interfaces with adjoining layer, thereby decreasing the collector current and deteriorating MagnetoResistance Ratio (MR ratio) of the spin-tunnel transistor.

Please amend the paragraph at page 8, line 20 to page 9, line 5, as follows:

A tunnel barrier layer 9 of antiferromagnetic dielectric material is formed between the magnetization pinned layer of ferromagnetic material 7 of base B and the nonmagnetic metal layer 11. The tunnel barrier layer 9 of antiferromagnetic dielectric material and the magnetization pinned layer of ferromagnetic material [[3]] 7 are exchange coupled to each other, whereby the magnetization M1 of the pinned layer being fixed in one direction, usually in parallel with its film plane in measuring range of signal magnetic field. Therefore, antiferromagnetic characteristic of the tunnel barrier layer should be sufficient to sustain exchange coupling between the tunnel barrier layer 9 and the neighboring magnetization pinned layer 7.

Please amend the paragraph at page 9, lines 6-9, as follows:

The tunnel barrier layer 9 of dielectric material is thin enough to ensure tunnel conduction through a tunnel junction between the adjacent two layers so that hot ~~electros~~ electrons are formed by the tunnel conduction and injected into the base B.

Please amend the paragraph at page 12, lines 16-23, as follows:

For the tunnel junction between the base B and the collector, a second tunnel barrier layer 19 is provided between the semiconductor substrate 1 of the collector and the ferromagnetic metal layer 3 of base B. The other tunnel barrier layer adjoining the magnetization pinned layer is formed of an antiferromagnetic dielectric material. In Fig. 4, the ferromagnetic metal layer [[9]] 7 is a magnetization pinned layer and its magnetization M1 is fixed by an exchange coupling with the tunnel barrier layer of antiferromagnetic dielectric 9.

Please amend the paragraph at page 13, lines 7-14, as follows:

While the emitter of the prior embodiments are metal layers, the spin-tunnel transistor of the present embodiment differs from that of those embodiments in that the emitter is a semiconductor layer 21. In other words, the transistor of the present embodiment has a metal-insulator-semiconductor junction (MIS junction) between the base B and the emitter of the semiconductor layer 21. Preferable material for the emitter of semiconductor material may be formed Si, Ge, a compound of [[III]] group [[of]] III elements and [[V]] group V [[of]] elements, $SrTiO_3$, or their equivalents.

Please amend the paragraph at page 14, line 21 to page 15, line 2, as follows:

Next, an Fe layer 3 of about 1 nm thickness, a Cu layer 5 of about 5 nm thickness and a Co layer 7 of about 1 nm thickness were formed on the collector layer 1 at each layer's growing speed of about 0.3 nm/min, using a Knudsen cell. Each layer of the base B [[has]] was predominantly grown so as to have the (111) face oriented in direction perpendicular to each surface of the layers.

Please amend the paragraph at page 15, lines 19-24, as follows:

An in-plane magnetic field, which was parallel to the surface of the layers was applied to measure the dependency of the collector current to the applied magnetic field. Fig. 6 [[was]] is a graph showing the characteristic of the collector current (nA) relative to the magnetic field (Oe) of the spin-tunnel transistor fabricated herein. A voltage of 1.5 V was applied between the emitter Al layer 11 and the base B through the terminals.

Please amend the paragraph at page 16, lines 10-12, as follows:

In the Example 2, a spin-tunnel transistor of Fig. [[16]] 1 was fabricated. The tunnel barrier layer 9 of the Example 2 was formed of a single layer of CoO having a thickness of about 2 nm.